What is claimed is:

1. A system for determining a flux of an analyte with respect to a source, the system comprising:

(a) an electrode including an enzyme for generating in the presence of the analyte a species detectable by the electrode;

(b) a translational mechanism for moving the electrode between at least two positions.

2. The system of claim 1, further comprising a voltage source for applying a voltage to a portion of the electrode at each of the two positions, wherein the detectable species undergoes a chemical change upon application of the voltage.

3. The system of claim 2, further comprising sensing circuitry for detecting a current from the electrode in response to the applied voltage at each position.

4. The system of claim 3, further comprising analysis circuitry for converting the detected currents to a determination of flux of the analyte.

5. The system of claim 4, wherein the analysis circuitry comprises a computer.

6. The system of claim 1, further comprising a controller for providing to the translational mechanism a frequency for the motion of the electrode.

7. The system of claim 6, wherein the controller comprises a computer.

8. The system of claim 1, further comprising an oxygen source for preventing distortion of the flux determination by oxygen depletion.

9. The system of claim 1, wherein the source comprises a mammalian cell.

10. The system of claim 1, wherein the enzyme is a dehydrogenase.

11. The system of claim 1, wherein the enzyme is an oxidase.

12. The system of claim 11, wherein the analyte is glucose and the enzyme is glucose oxidase.

13. The system of claim 11, wherein the analyte is glutamate and the enzyme is glutamate oxidase.

14. The system of claim 11, wherein the analyte is lactate and the enzyme is lactate oxidase.

15. The system of claim 1, wherein the detectable species is hydrogen peroxide.

16. A system for determining a flux of each of a plurality of analytes with respect to a source, the system comprising:

(a) for each analyte, an electrode including an enzyme for generating in the presence of the analyte a species detectable by the electrode;

(b) a translational mechanism for moving each of the electrodes between at least two positions.

17. The system of claim 16, further comprising a voltage source for applying a voltage to a portion of each of the electrodes at each of the two positions, wherein each of the detectable species undergoes a chemical change upon application of the voltage.

18. The system of claim 17, further comprising sensing circuitry for detecting a current from each of the electrodes in response to the applied voltage at each position.

19. The system of claim 18, further comprising analysis circuitry for converting the detected currents to a determination of flux for each of the analytes.

20. A method of determining a flux of an analyte with respect to a source, the method comprising:

(a) oscillating an electrode including an enzyme between first and second positions proximal to the source, whereby the enzyme contacts the analyte and generates a species detectable by the electrode, and whereby at each of the positions the concentration of the detectable species is dependent on the concentration of the analyte;

(b) applying a voltage to a portion of the electrode so that the detectable species undergoes a chemical change to generate a position-dependent current;

(c) sensing the current at the first and second positions; and

(d) using the sensed currents to determine the flux of the analyte with respect to the source.

21. The method of claim 20, wherein the source comprises a mammalian cell.

22. The method of claim 20, wherein the enzyme is a dehydrogenase.

23. The method of claim 20, wherein the enzyme is an oxidase.

24. The method of claim 23, wherein the enzyme is glucose oxidase and the analyte is glucose.

25. The method of claim 23, wherein the enzyme is glutamate oxidase and the analyte is glutamate.

26. The method of claim 23, wherein the enzyme is lactate oxidase and the analyte is lactate.

27. The method of claim 20, further comprising providing oxygen to the source, thereby preventing distortion of the flux determination by oxygen depletion.

28. The method of claim 20, wherein the detectable species is hydrogen peroxide.

29. The method of claim 28, further comprising contacting the source with catalase, thereby preventing distortion of the flux determination near the source.

30. The method of claim 20, wherein the oscillating step includes moving the electrode at a frequency in the range of about 0.1 Hz to about 0.3 Hz.

31. The method of claim 20, wherein the distance between the first and second positions is between about 10 μm and about 50 μm.

32. The method of claim 20, wherein the first and second positions lie within a gradient of the analyte with respect to the source.

33. The method of claim 20, wherein the distance between a surface of the source and the midpoint between the first and second positions is between about 2 μm and about 500 μm.

34. A method of assessing the viability of an embryo by determining a flux of an analyte with respect to the embryo, the method comprising:

(a) oscillating an electrode including an enzyme between first and second positions proximal to the embryo, whereby the enzyme contacts the analyte and generates a species detectable by the electrode, and whereby at each of the positions the concentration of the detectable species is dependent on the concentration of the analyte;

(b) applying a voltage to a portion of the electrode so that the detectable species undergoes a chemical change to generate a position-dependent current;

(c) sensing the current at the first and second positions;

(e) using the sensed currents to determine the flux of the analyte with respect to the embryo; and

(f) using the flux determination to assess the viability of the embryo.

35. A method of screening for compounds that affect a transmembrane flux of an analyte with respect to a cell, the method comprising:

(a) oscillating an electrode including an enzyme between first and second positions proximal to the cell, whereby the enzyme contacts the analyte and generates a species detectable by the electrode, and whereby at each of the positions the concentration of the detectable species is dependent on the concentration of the analyte;

(b) applying a voltage to a portion of the electrode so that the detectable species undergoes a chemical change to generate a position-dependent current;

(c) sensing the current at the first and second positions;

(d) using the sensed currents to determine the transmembrane flux of the analyte with respect to the cell;

(e) contacting the cell with a test compound;

(f) repeating steps (a) through (d) for the cell in the presence of the test compound; and

(g) determining whether a difference exists between the transmembrane flux of the analyte with respect to the cell in the presence of the test compound and the transmembrane flux of the analyte with respect to the cell in the absence of the test compound, a difference indicating that the test compound affects the transmembrane flux of the analyte with respect to the cell.